

ON THE SPECIES OF BIRD-*PARAPSYLLI* FROM THE FALKLANDS
OBTAINED ON THE BRITISH GRAHAM LAND EXPEDITION,
1934-37.

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(With text-figures 80-84.)

THE specimens were collected on Kidney Island by Mr. Brian Roberts, who informs me that fleas were very common in the burrows of *Spheniscus magellanicus*, but rarely found on the birds themselves; they occurred occasionally also on the bodies of *Eudyptes cristatus*, and were found in the burrows of *Procellaria aequinoctialis*, but not on the birds, although about 15 birds were examined. "These fleas," says Mr. Roberts, *i.l.*, "are well known locally as Jackass fleas, Jackass being the local name of *Spheniscus magellanicus*. They were so common that, while studying these penguins, it was necessary for me to strip three or four times daily in order to get rid of them. Their bites are particularly irritating to the men who regularly go out to the island to cut tussock grass for fodder." We are very grateful to Mr. Roberts for having preserved some specimens of what is evidently a local pest. As we had already a good series of specimens from the same island, sent to us by Mr. A. G. Bennett, all of which were *Parapsyllus longicornis* Enderl. 1901, I expected Mr. Roberts's material also to belong to that species. But when they were mounted and could be compared, I found three species instead of one. It was a surprise. All three are almost black and look to the naked eye identical, for which reason probably Mr. Roberts considered a dozen and a half a sufficiently large number of specimens of one species. I should have been still more grateful to him for a couple of hundred, or as many as he could have crammed into the tubes. We systematists require quantities, but have generally to be content with what we get. The two species discovered by Mr. Roberts have some characters in common with the mammal-*Parapsylli*, which makes it almost certain that these bird-fleas are derived from mammal-fleas. The diagnosis of group A of *Parapsyllus* which we gave in *Ectoparasites*, i, p. 352 (1923) does no longer apply; both new species have a larger number of bristles than *P. longicornis* and *P. australiacus* on which the description of group A was based, and in both new species the mesonotum bears a row of false bristles, which are absent from the other two fleas; moreover, the bristles of the second segment of the antenna are short, not long as in the other two species. All four bird-*Parapsylli* contrast with the numerous species occurring on mammals of the Andean countries in being larger and more strongly chitinized, the internal incrassation from the base of the antenna dorsad being always strongly marked.

P. longicornis and *P. australiacus* Roths. 1909 evidently represent each other, the former being known from St. Paul Island and the Falklands (Kidney Island), and the latter from various islands along the south and west coasts of Australia and from Chile; that is to say, the one is Atlantic and the other Pacific. One would much like to know what flea or fleas occur on the penguins of the islands of South Africa.

1. *Parapsyllus longicornis* Enderl. 1901.

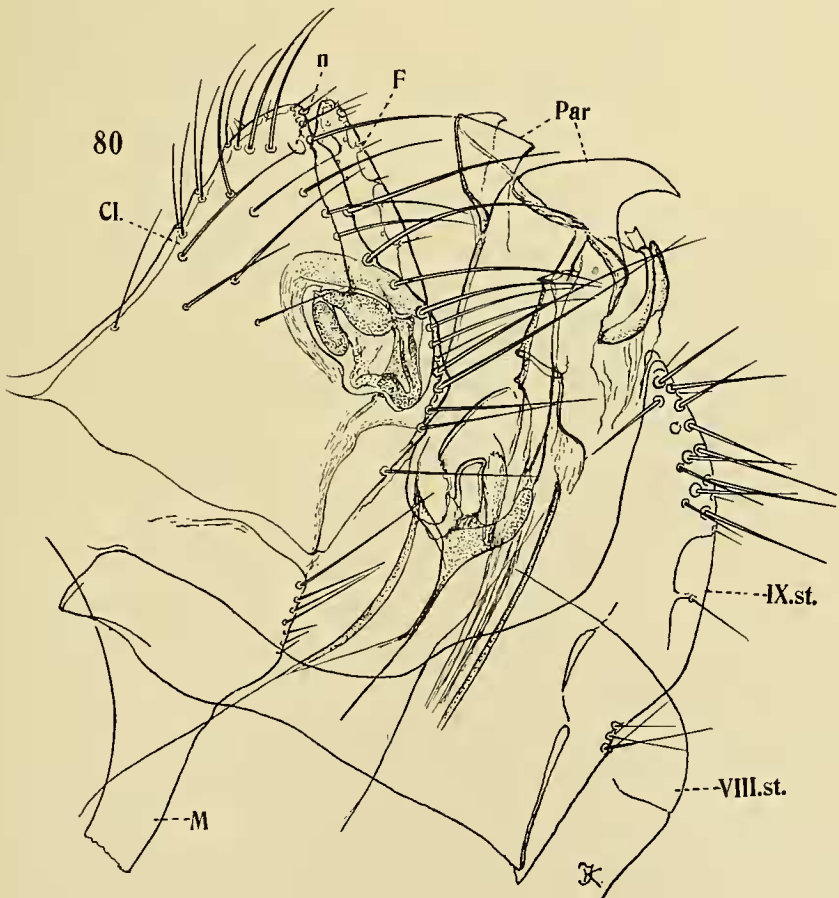
Kidney Island : a series off *Spheniscus magellanicus* and *Eudyptes cristatus*, Nov.—Dec. 1936 (Brian Roberts).—Also received from Sparrow Cove, Falklands, off *Pygoscelis papualis*, Oct. 1933, and Kidney I., off *Eudyptes cristatus*, Nov. 1934 (A. G. Bennett).

In most specimens there are a few small bristles in front of the postmedian row of the meso- and metanota. On the whole larger than *P. australiacus*, the digitoid of ♂ longer, the parameres of a different shape, the sinus of sternum VII of ♀ wider and the tail of the spermatheca longer.

2. *Parapsyllus magellanicus* sp.nov. (text-figs. 80, 81, 82).

Kidney Island : *Spheniscus magellanicus*, 28 Nov. 1936 (Brian Roberts), 1 ♂, 1 ♀.

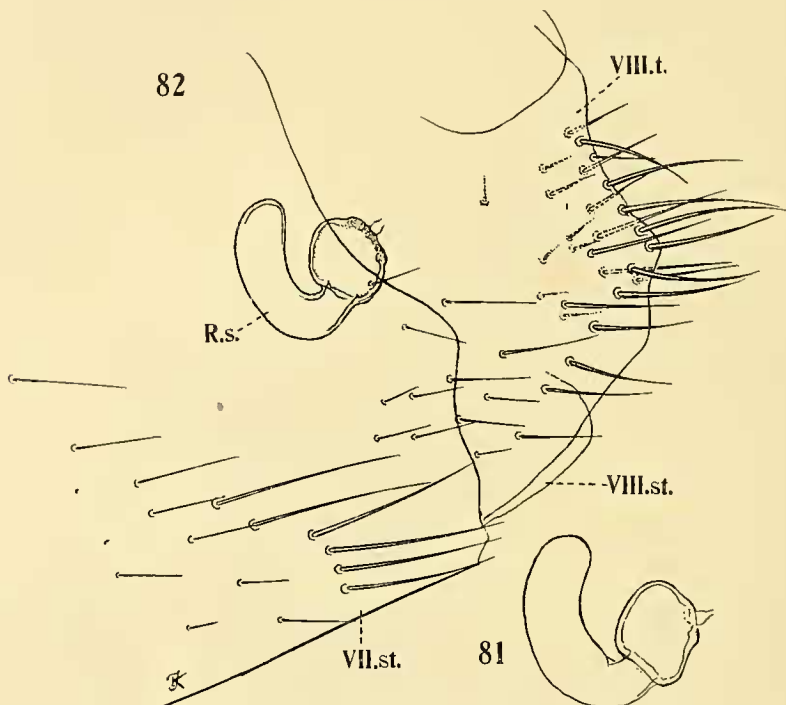
♂♀. Eye smaller than in *P. longicornis*, genal process behind eye longer,



less rounded ; in front of eye 3 bristles ; farther forward a row of 6, the most ventral one near the frontal tubercle. On occiput an anterior, a median and a posterior long bristle and on side an oblique row of 3 to 5, near posterior margin 4 to 6 (each side) besides the long ventral one. Bristles of antennal segment II short.

Bristles on pronotum (both sides together) in ♂ 17, ♀ 18; mesonotum in ♂ 16, 14, in ♀ 26, 16; metanotum in ♂ 13, 15, in ♀ 21, 17. False subapical bristles of mesonotum in ♂ 12, in ♀ 14. Bristles on metepimerum in ♂ 2, 2 and 3, 3, in ♀ 3, 5 and 4, 6. On abdominal terga in ♂ on II 19, 18; III 21, 17; IV 18, 16; VII 10, 11; in ♀ on II 42, 21; III 43, 22; IV, 37, 18; VII 25, 17. On sterna in ♂ on III 4, 7; IV 3, 7; V 3, 7; VI 6, 6; VII 4, 8; in ♀ on III 13, 15; IV ?, 13; V 8, 11; VI 11, 11; VII 21, 23. In both sexes some minute hairs in addition on sterna. Basal abdominal sternite with 21 to 23 small bristles on the lateral surface.

On outer surface of hindfemur, not counting the subbasal ventral pair, in ♂ 15 on one femur and 20 on the other, on inside a row of 9; in ♀ the bristles



more numerous. On outer surface of hindtibia 9 slender subdorsal bristles, a larger number near and at ventral margin. The longest apical bristle of hindtarsal segment II reaches in both sexes to apex of IV or beyond; longest of III extending in ♂ to second notch of V, in ♀ not quite so far.

Modified Segments.—♂. On sternum VIII an irregular posterior row of 12 bristles, farther forward about 22 bristles (on the two sides together). Posterior margin of clasper (Cl) convex in ventral half, the notch (n) in both elasper and digitoid subapical; at the ventral margin near base of manubrium a larger number of bristles than in *P. longicornis*. Apex of vertical arm of IX. st. broader than in *P. longicornis*, and the ventral arm wider and more strongly narrowed from middle to apex. Parameres very different: dorsal apical sclerite not rounded at apex, but dorsally and ventrally angulate, the ventral angle more or less sharp; second sclerite, which is irregularly elongate-elliptical in *P. longicornis* with the apex round, is replaced by an acute hook which is proximally very broad.—♀. VII. st. truncate, the apical margin somewhat undulate,

without the narrow sinus present in *P. longicornis* and *P. australiacus*. Apical margin of VIII. t. angulate below middle, concave above and below this rounded lobe; in *P. longicornis* and *P. australiacus* the margin is deeply incurved sub-ventrally, the ventral angle projecting as a rounded lobe. Head of spermatheca (text-fig. 81) very slightly longer than broad, much more square than in *P. longicornis* and *P. australiacus*.

Length: ♂ 2.5 mm., ♀ 3.3 mm.; hindfemur: ♂ 0.52 mm., ♀ 0.64 mm.

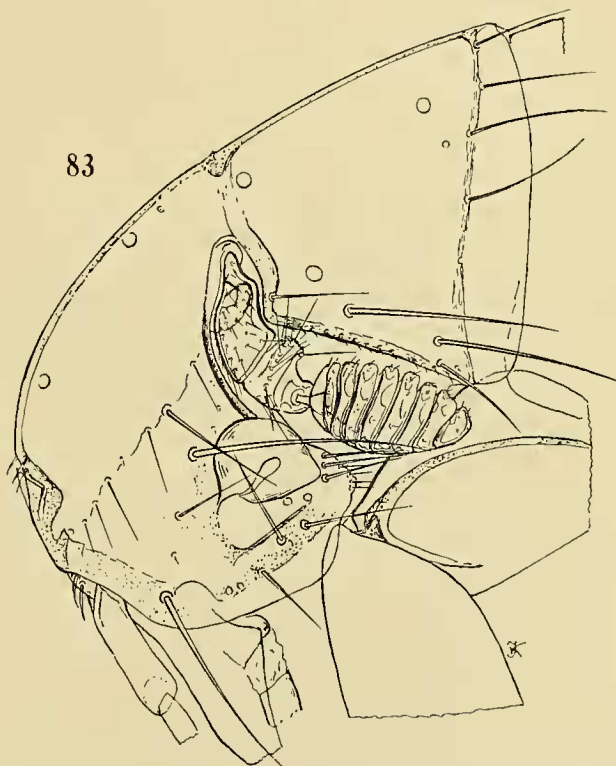
A second ♀, smaller and paler (hindfemur 0.56 mm.) agrees with the above ♀, but the false setae of the mesonotum are absent except a dorsal one and the eye-row of frons contains 1 or 2 more bristles. Fig. 82 is taken from this specimen. Tergum VIII bears rather fewer marginal and submarginal bristles, and the head of the spermatheca is shorter. The specimen suggests that the number of false setae is very variable in this species; individuals with few pseudosetae may even preponderate. A fair series of specimens will be required to settle this point. The specimen cannot be a hybrid between *P. longicornis* and *P. magellanicus*; apart from the reduction of the row of pseudosetae there is nothing in the morphology which points to inter-crossing. The left stylet of the specimen is not quite normal; it is somewhat reduced in size and its base partly fused with tergite IX.

3. *Parapsyllus robertsianus* sp. nov. (text-figs. 83, 84).

Kidney Island: in a burrow of *Spheniscus magellanicus* and *Procellaria aequinoctialis*, 3 Dec. 1936 (Brian Roberts), 1 ♀.—The two birds, Mr. Roberts informs me, often have separate burrows branching from the same entrance. The true host

of this new species, which I have much pleasure in associating with the discoverer's name, is probably the *Procellaria*.

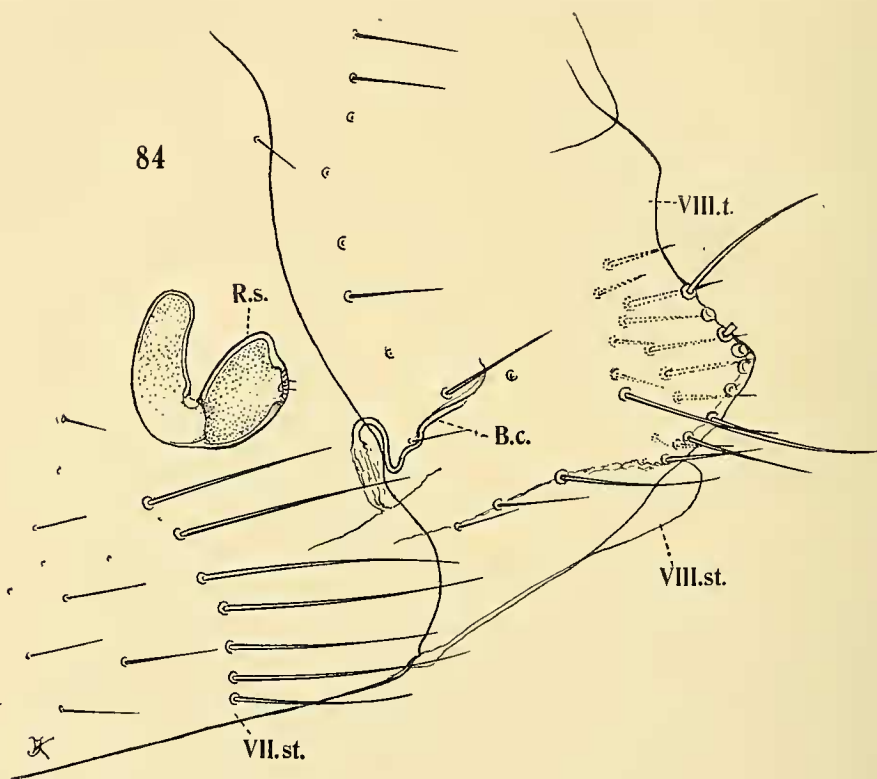
♀. Frons with an anterior row of bristles, but this row less far away from the eye than in *P. magellanicus*, the most ventral bristles of the row standing some distance below the frontal tubercle, not at the side of it. The bristle above the tubercle shorter than in the two previous species. Genal process behind eye as short as in *P. longicornis*, but less rounded, the genal area ventrally enlarged by a feebly chitinized expansion which contrasts with the strongly chitinized stripe that bears the bristles. On occiput the bristles as in *P. longicornis*, the



additional bristles present on the lateral surface in *P. magellanicus* being absent in *P. robertsonianus*. Bristles on antennal segment II short. Bristles on pronotum 18; mesonotum 59, 15; metanotum 31, 16, the lowest of the posterior row close to metepisternum, on which there are 10 on one side, 8 on the other; metepimerum 4, 5. Pseudosetae on mesonotum 10. The number of anterior bristles of mesonotum includes some bristles placed at the anterior ventral angle, which are absent from the other species here dealt with.

Bristles on abdominal terga II 40, 19; III 35, 19; IV 23, 15; VII 19, 9; on sterna III 32, 15; IV ? 10, 15; IV 9, 13; VI 17, 13; VII 15, 15. On side of basal sternum 14 one side, 17 the other.

On outer surface of hindfemur 10 bristles, on inner surface a row of 13 or 14. Mid- and hindtibiae with 7 instead of 6 dorsal notches bearing pairs of



strong bristles (apical pair inclusive); on outer surface of hindtibia 7 or 8 subdorsal bristles (inclusive of apical one), and a small number at and near the ventral margin. Lateral bristles of segments I and II of hindtarsus somewhat more numerous than in *P. longicornis*, the longest apical one of III reaching to middle of V; the ventral surface of V studded with small bristles from third lateral pair to apex in hindtarsus, in fore- and midtarsi these bristles more numerous and the hairy area extending farther towards base. In left foretarsus V has on one side 5 instead of the usual 4 lateral bristles. Midtarsal I a little longer than II. Apical margin of sternite VII (text-fig. 84) strongly slanting, subventrally rounded, no lateral sinus. On VIII. t. 10 bristles above stigma on one side, 12 on the other; from stigma down 12 (10 on other side), separated by

a space bare of bristles from the subventral row, which extends along apical margin and contains 12 (10) bristles, there being an additional long bristle on the side some distance from apical angle ; upper and lower portions of apical margin nearly forming a right angle ; on inside of this triangular area 11 (9) bristles. Head of spermatheca much larger than in the previous species, longer than broad, ovate, but with the posterior surface slightly curved in ; tail shorter than in the other species.

Length : 3·5 mm. ; hindfemur 0·69 mm.

